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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/744,531	06/15/2001	Jacobus Philippus Van Dyk	12683-003001	8452

7590 10/10/2003  
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EXAMINER

BOS, STEVEN J

ART UNIT PAPER NUMBER

1754

DATE MAILED: 10/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/744,531

Applicant(s)

Van Dyk et al

Examiner

Steven Bos

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on Sep 8, 2003
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-13, 15-17, and 19-21 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-13, 15-17, and 19-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1,6 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claims 1,6, ", causing an anatase phase to stabilize in the slag during the oxidation, causing ... to the Ti(IV) state" is new matter. The instantly claimed ", causing ... to stabilize ..." implies that these are separate steps. This is not supported by the instant specification, pp. 10,11 because it is the "oxidizing" step which allows the anatase phase to stabilize in the slag as well as allowing for the recitations which follow it. The instant specification, pp. 10,11, discloses that it is the oxidation step which allows an anatase phase to stabilize in the slag.

Claims 1,6 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The instantly claimed ", causing an anatase phase to stabilize in the slag during the oxidation, causing ... Ti(IV) state" is not enabled by the instant specification which does not disclose such "causing" steps nor how such "causing" steps are to be performed. In other words,

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it is not disclosed what physical or chemical or other type of process steps are necessary in order to perform these "causing" steps, other than the oxidizing step. It is not enabled as to what it is that applicant is doing in order to "cause" the anatase stabilization if it is not the instantly disclosed oxidizing step.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4,6-13,15-17,19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Borowiec '420 or WO 97/19199.

Borowiec and WO '199 each suggest the instantly claimed process and product thereof but may differ as to the oxidizing temperature (see claims 1-36, cols. 8,16,17 of Borowiec and pp. 11,29,30 and the claims of WO '199). The taught "900°C" oxidizing temperature in example 13 would overlap the instantly claimed "below about 900°C" due to the scope of the word "about" (see In re Ayers 69 USPQ 109 or In re Devaney 88 USPQ 97 or In re Erickson 145 USPQ 207). Also, these values, even if not seen to be overlapping are not patentably distinguishable (see In re O'Farrell 7 USPQ2d 1673 or Titanium Metals Corp. of Amer. v. Banner 227 USPQ 773). The taught positive process steps are suggested by the prior art therefore the instantly claimed

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“causing” steps would also be suggested. Even though examples 12,13 of Borowiec and WO ‘199 are a comparison to the prior art these examples do teach the instantly claimed positive process steps at temperatures which either overlap, eg. 900°C, or are within the temperature range, eg. 850°C, instantly claimed.

The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness, *In re Malagari*, 182 USPQ 549.

Any difference imparted by the product by process limitations of claim 19 would have been obvious to one having ordinary skill in the art at the time the invention was made because where the examiner has found a substantially similar product as in the applied prior art the burden of proof is shifted to the applicant to establish that their product is patentably distinct not the examiner to show the same process of making, *In re Brown*, 173 USPQ 685, *In re Fessmann*, 180 USPQ 324, *In re Spada*, 15 USPQ2d 1655, *In re Fitzgerald*, 205 USPQ 594, and MPEP 2113.

The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to select the portion of the prior art's range which is within the range of applicant's claims because it has been held to be obvious to select a value in a known range by optimization for the best results, see *In re Boesch*, 205 USPQ 215.

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Applicant's arguments filed September 8, 2003 have been fully considered but they are not persuasive.

Applicant states that examples of 12 and 13 of the Borowiec references show that there is no practical upgrading of the slag.

However this does not overcome the fact that these examples suggest the instantly claimed positive process steps.

Applicant states that the van Dyk affidavit shows that no anatase formed after oxidation and that an anatase phase does not always stabilize during oxidation of the slag even when the process is run as instantly claimed; accordingly the stabilizing of an anatase phase during oxidation is not merely an automatic result but is a positive step since such an anatase phase does not always stabilize during oxidation.

However as instantly recited the stabilizing of the anatase phase in the slag during the oxidation appears to be caused by the oxidizing because it is recited right after the oxidizing step and the word "causing" is used along with "during the oxidation." It is not clear what it is that is "causing" the anatase stabilization if it is not the oxidizing step. In other words, what is the positive process step that is "causing" the anatase stabilization? It is not a positive process step itself because there is nothing recited that would "cause" the anatase phase other than the oxidizing step. It is noted also that the affidavit is not commensurate in scope with the instant claims which recite much broader ranges of temperatures than the 850°C shown and allow for much shorter oxidizing times than the 2 hours shown and allow for much shorter reducing times

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than the 30 minutes shown. It is also noted that the instant specification pp. 10,11 recite that it is the oxidizing step which "allows" the anatase phase to be formed. This would appear to suggest that it is the oxidizing step which "causes" the anatase phase to be formed and that the instantly claimed "causing" step is not a positive process step by itself. Because Borowiec and WO '199 each suggest the instantly claimed positive process steps, the instantly claimed anatase stabilization would also appear to be obtained by the taught process.

Applicant states that examples 12 and 13 of the references do not teach stabilization of anatase phase during oxidation and it is submitted that no anatase phase did stabilize.

However examples 12 and 13 of the references each teach the same process conditions, ie. sized titania slag, oxidizing temperature and time and reducing temperature and time, as are instantly claimed. Therefore it not clear why examples 12 and 13 would not also obtain an anatase phase stabilized in the slag.

It is noted that an oxidation temperature of from about 700°C to about 800°C, as instantly disclosed on pp. 10, 11, does not appear to be taught or suggested by the cited prior art of record.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Bos whose telephone number is (703) 308-2537. The examiner is on the increased flexitime program schedule and can normally be reached between 8AM and 6PM Monday through Friday. The FAX No. for amendments is 703-872-9306. Any inquiry of a general nature or relating to the status of this application should be directed to the receptionist whose telephone number is (703) 308-0661.

A handwritten signature in black ink, appearing to read 'S. Bos', is positioned above the printed name and title.

Steven Bos  
Primary Examiner  
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